

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT - REVISED

PERMITTEE

Hamilton Sundstrand  
Attn: Mr. Larry Carlson  
4747 Harrison Avenue  
P.O. Box 7002  
Rockford, Illinois 61125-7002

Application No.: 73110059  
Applicant's Designation: ISG SYSTEM  
Subject: Aerospace Equipment Facility  
Date Issued: June 16, 2005  
Location: 4747 Harrison Avenue, Rockford

I.D. No.: 201030AEV  
Date Received: May 2, 2005  
Expiration Date: April 16, 2006

This permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of an ISG system with oil mist eliminator, External Combustion Group A emission units (Plant 6 and Plant 8 boilers, water heaters, air heaters, super heaters and large and small afterburners); External Combustion Group B emission units (Plant 3, Plant 9 and Plant 19 boilers, water heaters and space heaters); six Waukesha internal combustion engines (I.C.E.'s), a monopropellant engine test stand with a large afterburner from Combustion Group A, orbiter/booster test stands with small afterburners from Combustion Group A, an aircraft starter/APU testing unit, a diesel fired emergency generator, a natural gas fired emergency generator, and an emergency fire pump; also Plant 6 surface coating operations (8 paint spray booths and associated equipment) and cleaning operations (vapor degreasing, cold cleaning, etc.); one auxiliary power unit APU-7E7 and miscellaneous operations (air stripper, storage tanks, welding, packaging foam and cooling towers) pursuant to the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for nitrogen oxides, 100 tons/year for carbon monoxide, 100 tons/year for VOM, 25 tons/year for combined HAPs and 10 tons/year for an individual HAP). As a result the source is excluded from the requirements to obtain a Clean Air Act Permit Program permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.
- b. Prior to initial issuance, a draft of this permit has undergone a public notice and comment period.
- c. This permit supersedes all operating permits issued for this location.

- 2a. Emissions and operation of the ISG system shall not exceed the following limits:

Oil Introduced into System (including initially)		VOM Emissions	
<u>(Lb/Operating Hr)</u>	<u>(Tons/Year)</u>	<u>(Lbs/Hour)</u>	<u>(Tons/Year)</u>
8	0.44	8	0.44

These limits are based on a closed loop system efficiently recycling almost all of the oil used in the process and 35 Ill. Adm. Code 215.301. Compliance with annual limits shall be determined from a running total of 12 months of data.

- b. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the pollution control equipment covered under this permit such that the pollution control equipment be kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein.
- 3a. Emissions and operation of external combustion units shall not exceed the following limits:

<u>Item of Equipment</u>	Total Fuel Heat Content*		E M I S S I O N S			
	<u>(mmBtu/Mo)</u>	<u>(mmBtu/Yr)</u>	<u>NO<sub>x</sub></u> <u>(Lb/Mo)</u>	<u>(T/Yr)</u>	<u>CO</u> <u>(Lb/Mo)</u>	<u>(T/Yr)</u>
External Combustion Group A	21,600	86,600	3,100	6.2	1,815	3.6

\* Dual fuel capacity assuming 1000 Btu/scf for natural gas and 140,000 Btu/gal for fuel oil

Total fuel Heat Content = 1000 x Quantity of Natural Gas consumed (scf/mo) + 140000 x Quantity of Fuel Oil consumed (gal/mo)

The Emissions of NO<sub>x</sub> and CO are based on Standard AP-42 emission factors for natural gas and fuel oil combustion.

<u>Item of Equipment</u>	Natural Gas Usage		E M I S S I O N S			
	<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>	<u>NO<sub>x</sub></u> <u>(Lb/Mo)</u>	<u>(T/Yr)</u>	<u>CO</u> <u>(Lb/Mo)</u>	<u>(T/Yr)</u>
External Combustion Group B	5.4	21.5	540	1.1	108	0.9

Emissions are based on standard AP-42 emission factors.

iii.

Item of Equipment	Jet Fuel		E M I S S I O N S					
	(Gal/Mo)	(Gal/Yr)	Emission Factor		NO <sub>x</sub>		CO	
			(Lb/1000 Gal)	(Lb/1000 Gal)	(T/Mo)	(T/Yr)	(T/Mo)	(T/Yr)
			NO <sub>x</sub>	CO				
Aircraft Starter/APU Testing	2,400	4,000	28	413	0.04	0.06	0.50	0.83

iv.

Item of Equipment	Horsepower Rating (Hp)	Total Operating Hours for All 6 Engines (Hours/Year)
6 Waukesha I.C.E.'s	1,470 (Ea.)	4,295
Emergency Generator	305	75
Emergency Fire Pump	115	75
Emergency Generator	400	50

Item of Equipment	E M I S S I O N S					
	NO <sub>x</sub>		CO		VOM	
	(gr/Hp-Hr)	(T/Yr)	(gr/Hp-Hr)	(T/Yr)	(gr/Hp-Hr)	(T/Yr)
6 Waukesha I.C.E.'s	10.0	69.8	10.00	69.8	0.3	2.1
Emergency Generator	14.0	0.4	3.03	0.1		
Emergency Fire Pump	14.0	0.2	3.03	0.1		
Emergency Generator	19.5	0.6	0.90	0.2		

v.

Item of Equipment	Hours of Operation (Hr/Yr)	E M I S S I O N S			
		NO <sub>x</sub>		CO	
		(Lb/Hr)	(T/Yr)	(Lb/Hr)	(T/Yr)
Monopropellant Engine Test Stand - Mode 1	25	115.5	1.5	0.9	0.1
Monopropellant Engine Test Stand - Mode 2	25	N/A	N/A	67.1	0.9
Oribter/Booster Test Stands (Sea Level)	40	10.1	0.2	----	---

vi.

Item of Equipment	Shell Jet-A Usage		Pollutant	Emission Factor (Lb/Kgal)	Emissions	
	(Gal/Mo)	(Gal/Yr)			(T/Mo)	(T/Yr)
APU-7E7	13,200	132,000	NO <sub>x</sub>	122.3*	0.80	8.10
			CO	250.0*	1.70	16.50
			VOM	0.6*	0.04	0.04

\* AP-42, Section 3.1 Gas Turbines.

\*\* No load emission factor in application.

- b. Compliance with annual limits shall be determined from a running total of the data for the current month and the previous 11 months of data.

- 4a. The afterburner combustion chamber shall be preheated to the manufacturer's recommended temperature but not lower than 1525°F, before the testing process is begun; this temperature shall be maintained during the testing process.
- b. The afterburner shall be equipped with a continuous temperature indicator and strip chart recorder or disk storage for the afterburner combustion chamber temperature. The Permittee shall retain all records of equipment operation and strip charts or disk storage for at least one year. These records shall be available for inspection by the Illinois EPA.
5. This permit is being issued based on the "patch test" process meeting the exemption requirements specified in 35 Ill. Adm. Code 215.181(b). As a result, the emissions from the "patch test" process shall not exceed 800 pounds in any calendar month.

- 6a. i. Emissions and operation of coating and cleaning shall not exceed the following limits:

<u>Process</u>	<u>Material</u>	<u>Usage Rate (Gal/Mo)</u>	<u>Rate (Gal/Yr)</u>	<u>Average VOM Content (Lb/Gal)</u>	<u>VOM Emissions (Lb/Mo)</u>	<u>(T/Yr)</u>
Surface Coating Operations	Paints & Thinners	175	1,750	7.00	1,225	6.1
Cleanup	MEK & Methanol	180	1,760	6.71	1,208	5.9
Cold Cleaning*	Cleaning Solvent	5,000	50,000	6.67	3,335	16.7
IPA Vapor Degreasing	Isopropanol	220	2,200	6.59	1,450	7.25
APU Flushing**	Isopropanol	330	3,300	6.59	544	2.72
Vapor Degreasing/ Cold Cleaning	Isopropanol					
	1-Bromopropane	342	4,104	11.25	3,848	23.10
Vapor Degreasing	Cyclohexane	120	1,200	6.50	780	3.90
	HFE7100	60	600	12.50		3.80
Total:						69.50

\* Emissions assumed to be 10% of solvent used (based on in-house data)

\*\* Emissions assumed to be 24% of solvent used (based on in-house data)

- ii. Emissions of VOM from miscellaneous activities (i.e., the gasoline, waste oil, fuel oil and jet fuels), storage tanks, air stripper and packaging foam shall not exceed: 3.0 tons/year.
- b. Compliance with annual limits shall be determined from a running total of the current month and the previous 11 months of data.
- c. This permit is issued based on the plant meeting the exemption requirements of 35 Ill. Adm. Code Part 215, Subpart F, i.e., the total coating usage of the coating plant as addressed in this permit does not exceed 9,463 l/yr (2,500 gal/yr).

- d.
  - i. If the total coating usage exceeds 9,463 l/yr (2,500 gal/yr), the Permittee's coating operations are subject to the emission limitations of Part 215, Subpart F, e.g., the VOM content of extreme performance coatings applied to miscellaneous metal parts and products shall not exceed 3.5 lb/gallon.
  - ii. By March 1 following a calendar year in which the total coating usage exceeds 9,462 l/yr (2,500 gal/yr), the Permittee shall submit a report addressing compliance with Part 215, Subpart F, including a listing of coatings at the plant subject to Subpart F, the typical usage of each coating and the VOM content as applied.
- e. This permit is issued based on the cold cleaning and vapor degreasers meeting the specific operating requirements of 35 Ill. Adm. Code, Part E, Sections 215.181, 215.182, 215.183 and 215.184.
- 7. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from each fuel combustion unit to exceed 0.3 lbs/mmBtu in any one hour period when burning distillate fuel oil exclusively in accord with 35 Ill. Adm. Code 214.122(b) (2).
- 8. At the above location, the Permittee shall not keep, store, or utilize:
  - a. Distillate fuel oil (Grades No. 1 and 2) with a sulfur content greater than the larger of the following two values:
    - i. 0.28 weight percent, or
    - ii. The wt. percent given by the formula: Maximum wt. percent sulfur =  $(0.000015) \times (\text{Gross heating value of oil, Btu/lb})$ .
- 9a. Organic liquid by-products or waste materials shall not be used in any fuel combustion emission source without written approval from the Illinois EPA.
- b. The Illinois EPA shall be allowed to sample all fuels stored at the above location.
- c. The Permittee shall notify the Illinois EPA prior to any change in the type of fuel used at the source.
- d. Natural gas, distillate fuel oil and jet fuel shall be the only fuel(s) fired in the above referenced fuel combustion emission units.
- 10. No person shall cause or allow the emission of carbon monoxide into the atmosphere from each individual boiler to exceed 200 ppm in accordance with 35 Ill. Adm. Code 216.121.
- 11. This permit is issued based on emissions of volatile organic material from any emission unit not exceeding 8 lb/hour pursuant to 35 Ill. Adm. Code 215.301.
- 12. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act shall not equal or exceed 10 tons per year of any single HAP

or 25 tons per year of any combination of such HAPs, or such lesser quantity as USEPA may establish in rule which would require the Permittee to obtain a CAAPP permit from the Illinois EPA. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA.

- 13a. The Permittee shall maintain monthly records of the following:
- i. Oil introduced into the ISG system (lbs/month and tons/year).
  - ii. Usage rates of natural gas and distillate fuel oil for External Combustion Group A (mmscf/mo and gal/mo).
  - iii. Total combined heat content of both natural gas and fuel oil, calculated using the usage rates in (i) and the heat contents of natural gas (1000 Btu/scf) and fuel oil (140,000 Btu/gal).
  - iv. Usage rate of natural gas for External Combustion Group B (mmscf/mo).
  - v. Jet Fuel usage for the Aircraft Starter/APU Testing and APU-7E7 (gal/mo).
  - vi. Hours of operation for the Monopropellant Engine Test Stands the Orbiter/Booster Test stands, the emergency pumps/generators and the 6 I.C.E.'s (hours/mo).
  - vii. Usage rates and VOM content of all paints and thinners, (gal/mo and lb VOM/gal).
- b. The Permittee shall maintain monthly records of the following items for the degreasers:
- i. Solvent usage (U) in gallons/month and gallons/year.
  - ii. Virgin solvent added to the degreasers (V) in gallons/month and gallons/year, as determined by daily addition log sheets.
  - iii. Waste solvent removed from the degreasers (W) in gallons/month and gallons/year.
  - iv. Analysis sheet(s) showing test results and any calculations used to determine percent concentration of solvent in waste (P) for each month or each year.
  - v. Plant-wide emissions of VOM and HAPs in tons/month.
  - vi. Plant-wide emissions of VOM and HAPs in tons/yr (i.e., running 12 month total).
- c. The Permittee shall maintain records of the sulfur content of each fuel.
14. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of

entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.

15. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.
16. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Compliance Section (#40)  
P.O. Box 19276  
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
5415 North University  
Peoria, Illinois 61614

It should be noted that this permit has been revised to incorporate Construction Permit No. 02060013 for a vapor degreaser without any increase in emissions from the current permit limits.

Also please note that all welding and cooling towers are exempt from state permit requirements pursuant to 35 Ill. Adm. Code 201.146(y) and (vv) (2).

Also please note that the 6th paint booth from Construction Permit 03100065 and the 7th and 8th paint booths from Construction Permit 04070078 have been added to this permit with no increase in material usage or emissions from the surface coating operations.

Also, please note that HFE7100 has been added to list of vapor degreasing solvents from Construction Permit 04060088.

Also, please note that APU-7E7 from Construction Permit 04090003 has been added to this permit.

Also, please note that the ISG system from Construction Permit 05050002 has been added to this permit.

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If you have any questions on this, please call Randy Solomon at 217/782-2113.

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

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cc: Region 2



Attachment A

This attachment provides a summary of the maximum emissions from this facility operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. This facility utilizes natural gas, fuel oil, coatings, etc. so as not to exceed specified emission thresholds. The resulting maximum emissions are below the levels, e.g., 100 tons/year for NO<sub>x</sub>, CO, VOM, 10 tpy for each single HAP and 25 tpy for all HAPs combined at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled and control measures are more effective than required in this permit.

<u>NO<sub>x</sub></u> <u>(Tons/Year)</u>	<u>CO</u> <u>(Tons/Year)</u>	<u>VOM</u> <u>(Tons/Year)</u>	<u>Single HAP</u> <u>(Tons/Year)</u>	<u>Combined HAPs</u> <u>(Tons/Year)</u>
88.2	76.5	75	< 10	< 25

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